



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,766	12/08/2005	Christian Reufer	032301.435	7517

25461 7590 06/08/2007  
SMITH, GAMBRELL & RUSSELL  
SUITE 3100, PROMENADE II  
1230 PEACHTREE STREET, N.E.  
ATLANTA, GA 30309-3592

EXAMINER
----------

WONG, EDNA

ART UNIT	PAPER NUMBER
----------	--------------

1753

MAIL DATE	DELIVERY MODE
-----------	---------------

06/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/559,766

**Applicant(s)**

REUFER ET AL.

**Examiner**

Edna Wong

**Art Unit**

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>December 8, 2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

### ***Specification***

The disclosure is objected to because of the following informalities:

page 4, line 28, the word "have" should be amended to the word -- having --.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

Claims 5, 12-13, 16 and 18 are objected to because of the following informalities:

#### **Claim 5**

line 5, the word -- a -- should be inserted after the word "in".

#### **Claim 12**

line 1, the word "the" (second occurrence) should be deleted.

#### **Claim 13**

line 3, the word "dialkylamdes" should be amended to the word -- dialkylamides --

Claim 16

line 3, "CO<sub>2</sub>" should be amended to -- carbon dioxide --. See claim 1, lines 4-5.

Claim 18

line 2, the word "potentiostatis" should be amended to the word -- potentiostatic --

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

I. Claims 2-4, 7-11, 14-15, 17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2

line 4, it appears that the "cathodic carboxylation" is the same as that recited in claim 1, line 4. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "undergoes".

Claim 4

lines 1-2, it appears that the "3-methylmercaptopropionaldehyde" is further

limiting the compound corresponding to the formula  $R^1-C(=X)R^2$  as recited in claim 1, lines 5-6. However, it is unclear if it is. If it is, then it is suggested that the words -- the compound corresponding to the formula  $R^1-C(=X)R^2$  is -- be inserted after the word "wherein".

lines 2-3, it appears that the "cathodic carboxylation" is the same as that recited in claim 1, line 4. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "undergoes".

#### Claim 7

lines 1-2, "the electrode which is doped with one or more of said elements" lacks antecedent basis.

line 2, "said elements" lack antecedent basis.

#### Claim 8

line 1, it appears that "a catholyte" is the same as the catholyte recited in claim 1, line 14. However, it is unclear if it is. If it is, then it is suggested that the word "a" be amended to the word -- the --.

lines 3-4, it appears that the "catholyte" is the same as the catholyte recited in

claim 8, line 1. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "wherein".

line 4, it appears that the "anolyte" is the same as the anolyte recited in claim 8, line 2. However, it is unclear if it is. If it is, then it is suggested that the word -- the -- be inserted after the word "and".

Claim 11

lines 1-2, "the conducting salt of the ... anolyte" lacks antecedent basis.

Claim 14

lines 1-2, it appears that "a divided electrolytic cell having an ion exchange membrane" is further limiting the electrolytic cell recited in claim 1, lines 16-17. However, it is unclear if it is.

line 3, "the separating element" lacks antecedent basis.

Claim 17

lines 2-3, it appears that "a divided electrolytic cell having plane-parallel electrodes" is further limiting the electrolytic cell recited in claim 1, lines 16-17. However, it is unclear if it is.

Claim 20

lines 4-5, "the salt form the formed substituted carboxylic acid anion with a cation" lacks antecedent basis.

line 4, it is unclear what is meant by the words "form the formed".

lines 4-5, "the formed substituted carboxylic acid anion with a cation" lacks antecedent basis.

line 5, "the electrolyte" lacks antecedent basis.

lines 5-6, "the addition of a substantially nonpolar solvent" lacks antecedent basis.

lines 7-8, "the salt which has been separated from the organic phase" lacks antecedent basis.

lines 7-8, "the organic phase" lacks antecedent basis.

II. Claims 8-10 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap

between the elements. See MPEP § 2172.01. The omitted elements are:

(a) the relationship between the identical and different conducting salts (from claim 8, lines 4-5) and the conducting salt (from claim 1, line 14).

Is the conducting salt (from claim 1, line 14) the same as one of the identical and different conducting salts (from claim 8, lines 4-5)?

(b) the relationships between the plane-parallel electrodes (from claim 17, line 3), the diamond film cathode (from claim 1, line 5) and the insoluble anode (from claim 1, line 18).

Is the diamond film cathode (from claim 1, line 5) and the insoluble anode (from claim 1, line 18) the same as the plane-parallel electrodes?

### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

Claims **1-20** define over the prior art of record because the prior art does not teach or suggest a process for the preparation of an  $\alpha$ -substituted carboxylic acid selected from the group consisting of  $\alpha$ -hydroxycarboxylic acids and N-substituted  $\alpha$ -aminocarboxylic acids, which comprises the step of cathodic carboxylation as presently claimed, esp., wherein the cathodic carboxylation is with carbon dioxide at a diamond film cathode. The prior art does not contain any language that teaches or suggests the



Art Unit: 1753

above. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 2-4, 7-11, 14-15, 17 and 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Lehmann et al.** (US Patent No. 6,475,370 B2) is cited to teach using a magnesium or carbon cathode (col. 4, line 10).

**Moingeon et al.** (US Patent No. 4,824,532) is cited to teach a cathode of either any metal such as stainless steel, nickel, platinum, gold, copper or graphite (col. 5, lines 24-28).

**Wagenknecht** (US Patent No. 4,601,797) is cited to teach that any suitable material can be employed as cathode, various metals, alloys, graphite, etc. being known in the art (col. 7, lines 9-25).

**Wagenknecht** (US Patent No. 4,582,577) is cited to teach that any suitable material can be employed as cathode, various metals, alloys, graphite, etc. being known in the art (col. 5, lines 4-20).

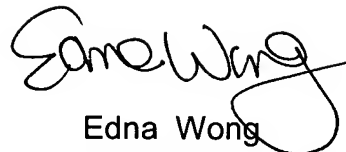
**Kato** (US Patent No. 4,248,677) is cited to teach that the cathode is preferably

made of a solid material such as brass, graphite, inconel, copper, nichrome, zinc, lead, platinum, nickel, stainless steel and aluminum. Liquid material such as mercury can also be used (col. 9, lines 26-30).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Edna Wong  
Primary Examiner  
Art Unit 1753

EW  
June 5, 2007